



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Dairy
Division**

United States Standards for Grades of Dry Buttermilk and Dry Buttermilk Product

Effective August 23, 1991

United States Standards for Dry Buttermilk and Dry Buttermilk Product

Definitions

§ 58.2651 *Dry buttermilk and dry buttermilk product.*

(a) *Dry buttermilk* (made by the spray process or the atmospheric roller process) is the product resulting from drying liquid buttermilk that was derived from the churning of butter and pasteurized prior to condensing at a temperature of 161°F for 15 seconds or its equivalent in bacterial destruction. Dry buttermilk shall have a protein content of not less than 30.0 percent. Dry buttermilk shall not contain nor be derived from nonfat dry milk, dry whey, or products other than buttermilk, and shall not contain any added preservative, neutralizing agent, or other chemical.

(b) *Dry buttermilk product* (made by the spray process or the atmospheric roller process) is the product resulting from drying liquid buttermilk that was derived from the churning of butter and was pasteurized prior to condensing at a temperature of 161°F for 15 seconds or its equivalent in bacterial destruction. Dry buttermilk product has a protein content less than 30.0 percent. Dry buttermilk product shall not contain nor be derived from nonfat dry milk, dry whey, or products other than buttermilk, and shall not contain any added preservative, neutralizing agent, or other chemical.

U.S. Grades

§ 58.2652 *Nomenclature of U.S. Grades.*

The nomenclature of U.S. grades is as follows:

(a) U.S. Extra

(b) U.S. Standard

§ 58.2653 *Basis for determination of U.S. grades.*

(a) The U.S. grades of dry buttermilk and dry buttermilk product are determined on the basis of flavor, physical appearance, bacterial estimate on the basis of standard plate count, milkfat, moisture, scorched particles, solubility index, titratable acidity, and protein content.

(b) The final U.S. grade shall be established on the basis of the lowest rating of any one of the quality characteristics.

§ 58.2654 *Specifications for U.S. grades.*

(a) *U.S. Extra Grade.* U.S. Extra Grade dry buttermilk and U.S. Extra Grade dry buttermilk product shall conform to the following requirements (See Tables I, II, III, and IV of this section):

(1) *Flavor (applies to the reconstituted product).* Shall be sweet and pleasing, and has no unnatural or offensive flavors.

(2) *Physical appearance.* Shall possess a uniform cream to light brown color, be free from lumps except those that readily break up with slight pressure, and be practically free from visible dark particles.

(3) *Bacterial estimate.* Not more than 50,000 per gram standard plate count.

(4) *Milkfat content.* Not less than 4.5 percent.

(5) *Moisture content.* Not more than 4.0 percent.

(6) *Scorched particle content.* Not more than 15.0 mg. for spray process and 22.5 mg. for roller process.

(7) *Solubility index.* Not more than 1.25 ml. for spray process and 15.0 ml. for roller process.

(8) *Titrateable acidity.* Not less than 0.10 percent nor more than 0.18 percent.

(9) *Protein content (dry buttermilk product only).* Not less than 30.0 percent.

(10) *Protein content (dry buttermilk product only).* Less than 30.0 percent.

(b) *U.S. Standard Grade.* U.S. Standard Grade dry buttermilk and U.S. Standard Grade dry buttermilk product shall conform to the following requirements (See Tables I, II, III, and IV of this section):

(1) *Flavor (applies to the reconstituted product).* Should possess a fairly pleasing flavor, but may possess slight unnatural flavors and has no offensive flavors.

(2) *Physical appearance.* Shall possess a uniform cream to light brown color, be free from lumps except those that readily break up with moderate pressure, and be reasonably free from visible dark particles.

(3) *Bacterial estimate.* Not more than 200,000 per gram standard plate count.

(4) *Milkfat content.* Not more than 4.5 percent.

(5) *Moisture content.* Not more than 5.0 percent.

(6) *Scorched particle content.* Not more than 22.5 mg. for spray process and 32.5 mg. for roller process.

(7) *Solubility index.* Not more than 2.0 ml. for spray process and 15.0 ml. for roller process.

(8) *Titrateable acidity.* Not less than 0.10 percent nor more than 0.20 percent.

(9) *Protein content (dry buttermilk only).* Not less than 30.0 percent.

(10) *Protein content (dry buttermilk product only).* Less than 30.0 percent.

Table I.--Classification of Flavor

| Flavor characteristics | U.S. extra grade | U.S. standard grade |
|-------------------------------|-------------------------|----------------------------|
| Unnatural | None | Slight. |
| Offensive | None | None. |

Table II.--Classification of Physical Appearance

| Physical appearance characteristics | U.S. extra grade | U.S. standard grade |
|--|-------------------------|----------------------------|
| Lumpy | Slight | Moderate. |
| Visible dark particles | Practically free | Reasonably free. |

Table III.--Classification According to Laboratory Analysis

| Laboratory tests | U.S. extra grade | U.S. standard grade |
|---|-------------------------|----------------------------|
| Bacterial estimate: Standard plate count per gram (Max) | 50,000 | 200,000 |
| Milkfat content: Percent (Min.) | 4.5 | 4.5 |
| Moisture content: Percent (Max.) | 4.0 | 5.0 |
| Scorched particle content: mg. Spray process (Max.) Roller process (Max.). | 15.0 22.5 | 22.5 32.5 |
| Solubility index: ml. Spray process (Max.) Roller process (Max.) | 1.25 15.0 | 2.0 15.0 |
| Titratable acidity: Percent | 0.10 - 0.18 | 0.10 - 0.20 |

Table IV.--Classification According to Protein

| Product | U.S. extra grade | U.S. standard grade |
|--|-------------------------|----------------------------|
| Dry Buttermilk: Percent (Min.) | 30.0 | 30.0 |
| Dry Buttermilk Product: Percent (Less than) | 30.0 | 30.0 |

§ 58.2655 *U.S. grade not assignable.*

Dry Buttermilk or dry buttermilk product shall not be assigned a U.S. grade for one or more of the following reasons:

- (a) Fails to meet or exceeds the requirements for U.S. Standard Grade.
- (b) Is produced in a plant found on inspection to be using unsatisfactory manufacturing practices, equipment, or facilities, or to be operating under unsanitary plant conditions.
- (c) Is produced in a plant which is not USDA approved.

§ 58.2656 *Test methods.*

All required tests shall be performed in accordance with “Instructions for Resident Grading Quality Control Service Programs and Laboratory Analysis,” DA Instruction No. 918-RL, Dairy Grading Branch, Dairy Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, DC 20090-6456; and “Official Methods of Analysis of the Association of Official Analytical Chemists,” 15th Ed. or latest revision.

Explanation of Terms

§ 58.2657 *Explanation of terms.*

- (a) *With respect to flavor:*
 - (1) *Slight.* Detectable only upon critical examination.
 - (2) *Offensive.* Those that are obnoxious and cause displeasure when tasted or smelled.
 - (3) *Unnatural.* Those that are abnormal to the characteristic flavor of the product.
- (b) *With respect to physical appearance:*
 - (1) *Practically free.* Present only upon very critical examination.
 - (2) *Reasonably free.* Present only upon critical examination.
 - (3) *Slight pressure.* Only sufficient pressure to disintegrate the lumps readily.
 - (4) *Moderate pressure.* Only enough pressure to disintegrate the lumps easily.

- (5) *Lumpy*. Loss of powdery consistency but not caked into hard chunks.
- (6) *Visible dark particles*. The presence of scorched or discolored specks.